

WHAT IS CLAIMED IS:

1. A system for mixing water with CO<sub>2</sub> to produce carbonated water at a targeted carbonation level, the system comprising:
  - a tank containing water and a headspace, the tank having a first end and a second end;
  - a source of CO<sub>2</sub> in fluid communication with the headspace;
  - a baffle in the tank between the first end and the second end;
  - an orifice in the first end of the tank; and
  - a supply of water coupled to the orifice, the orifice being structured and arranged to direct a stream of water into the tank,wherein the baffle is positioned in the tank so as to target a desired carbonation level of the water in the tank.
2. The system of claim 1, further comprising an outlet at the first end of the tank.
3. The system of claim 2, wherein an outlet tube extends from the first end past the baffle, and wherein the baffle includes a cutout region structured and arranged to accommodate the outlet tube.
4. The system of claim 1, further comprising a CO<sub>2</sub> inlet member and a pressure relief member each extending from the second end through the baffle.
5. The system of claim 4, wherein the baffle includes at least one opening configured to receive at least one of the CO<sub>2</sub> inlet member and the pressure relief member.
6. The system of claim 1, further comprising:

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a probe housing extending from the second end of the tank toward the baffle;  
a liquid level probe in the probe housing, the liquid level probe extending  
through the baffle and toward the first end.

7. The system of claim 6, wherein the baffle is coupled to the probe housing.

8. The system of claim 6, wherein the baffle includes an opening structured and arranged to accommodate the liquid level probe.

9. The system of claim 8, wherein the probe housing extends through the opening in the baffle and toward the first end of the tank.

10. The system of claim 1, wherein the baffle is structured and arranged so as to atomize the stream of water when the level of the carbonated water reaches a predetermined low level.

11. The system of claim 1, wherein the baffle is structured and arranged so as to agitate carbonated water flowing by the baffle when the level of the carbonated water reaches a predetermined low level.

12. The system of claim 1, wherein the orifice is configured to direct the stream of water such that CO<sub>2</sub> bubbles are entrained to produce the targeted carbonation level of the water.

13. A carbonator for use in a beverage dispenser, comprising:

a tank having a first end and a second end, the tank being configured to contain water;

an inlet in the second end of the tank configured to receive a supply of CO<sub>2</sub>;

a baffle in the tank between the first end and the second end; and  
an orifice in the first end of the tank, the orifice being structured and  
arranged to direct a stream of water into the tank,

wherein the baffle is positioned in the tank so as to target a desired  
carbonation level of the water in the tank.

14. The carbonator of claim 13, further comprising an outlet at the first end  
of the tank.

15. The carbonator of claim 14, wherein an outlet tube extends from the  
first end past the baffle, and wherein the baffle includes a cutout region structured  
and arranged to accommodate the outlet tube.

16. The carbonator of claim 13, further comprising a CO<sub>2</sub> inlet member and  
a pressure relief member each extending from the second end through the baffle.

17. The carbonator of claim 16, wherein the baffle includes at least one  
opening configured to receive at least one of the CO<sub>2</sub> inlet member and the pressure  
relief member.

18. The carbonator of claim 13, further comprising:  
a probe housing extending from the second end of the tank toward the baffle;  
a liquid level probe in the probe housing, the liquid level probe extending  
through the baffle and toward the first end.

19. The carbonator of claim 18, wherein the baffle is coupled to the probe  
housing.

20. The carbonator of claim 18, wherein the baffle includes an opening  
structured and arranged to accommodate the liquid level probe.

21. The carbonator of claim 20, wherein the probe housing extends through the opening in the baffle and toward the first end of the tank.

22. The carbonator of claim 13, wherein the baffle is structured and arranged so as to atomize the stream of water when the level of the carbonated water reaches a predetermined low level.

23. The carbonator of claim 13, wherein the baffle is structured and arranged so as to agitate carbonated water flowing by the baffle when the level of the carbonated water reaches a predetermined low level.

24. The carbonator of claim 13, wherein the orifice is configured to direct the stream of water such that CO<sub>2</sub> bubbles are entrained to produce a desired carbonation of the water.

25. A method of mixing water with CO<sub>2</sub> to produce carbonated water at a targeting carbonation level, the method comprising:

supplying gaseous CO<sub>2</sub> to a headspace in a tank containing a volume of water to be carbonated, said headspace being disposed above a liquid-gas interface between the water and the gaseous CO<sub>2</sub>;

directing a stream of water first through the headspace to entrain CO<sub>2</sub> gas therein and then into the volume of water to carbonate the same to a desired carbonation level; and

separating CO<sub>2</sub> bubbles formed in the quantity of water according to relatively large and small sizes.

26. The method of claim 25, wherein said separating is performed by a baffle disposed in the quantity of water in the tank in a path of the stream of water,

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and between the stream and a carbonated water outlet from the tank, whereby most large size bubbles become trapped on the stream side of the baffle and never reach the carbonated water outlet.

27. The method of claim 26, wherein the baffle is structured and arranged to atomize the stream of water when the quantity of water in the tank reaches a predetermined level.

28. The method of claim 26, wherein the baffle is structured and arranged to agitate water as it flows from the stream side of the baffle to the carbonated water side of the baffle when the quantity of water in the tank reaches a predetermined level.

29. The method of claim 26, further comprising adjusting a position of the baffle to target a desired carbonation level of the water in the tank.

30. A method of dispensing a beverage, comprising:  
producing carbonated water according to the method of claim 25; and  
mixing an amount of concentrate with an amount of the carbonated water to produce a beverage; and  
dispensing the beverage.

31. A carbonator for use in a beverage dispenser, comprising:  
a tank having at least one wall, the tank being configured to contain water;  
an inlet in the at least one wall of the tank configured to receive a supply of CO<sub>2</sub>;  
a baffle in the tank spaced from the inlet;

an orifice in the at least one wall of the tank, the orifice being structured and arranged to direct a stream of water into the tank,

wherein the baffle is positioned in the tank so as to target a desired carbonation level of the water in the tank.

the tank is a carbonation tank, the orifice is a carbonation orifice, and the baffle is a carbonation baffle.

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